608-CD-001-007

EOSDIS Core System Project

ECS Science Operations Plan

December 2001

Raytheon Company
Upper Marlboro, Maryland

ECS Science Operations Plan

December 2001

Prepared Under Contract NAS5-60000
CDRL Item 115

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Preface

This ECS Science Operations Plan is an ECS Contract document that includes all modifications through Modification 141 for Contract NAS5-60000. This document is a complete revision of the previous version.

This document is a formal contract deliverable with an approval code 1. In accordance with the Modification 86 CDRD, it is issued each calendar year. It requires Government review and approval prior to acceptance and use. Changes to this document also require Government approval prior to acceptance and use. Changes to this document shall be made by document change notice (DCN) or by complete revision.

Once approved, this document shall be under ECS Project Configuration Control.

Any questions should be addressed to:

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Abstract

The **ECS Science Operations Plan** provides a description of the way in which the science system appears to its users/operators and the way in which they interact with the system. It details how operational tasks are allocated to the operations staff. It represents a consensus between development, support, and user groups on the conceptual operation of the overall system and serves as an information source during design, implementation, and testing of the system.

This version applies to ECS maintenance and operations activities described in Section 3.8 of the ECS Statement of Work except for EMOS related activities.

Keywords: Operators, users, design, implementation, testing, staffing, training, scenarios, operations concept, TERRA, ASTER, CERES, MISR, MODIS, MOPITT, LANDSAT-7, ETM+, METEOR, SAGE III, AQUA, AMSR-E, AIRS, AMSU, HSB, ICESat, GLAS, AURA, HIRDLS, MLS, TES, RADARSAT, DAO

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Title	Revised
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1-1 and 1-2	Revised
2-1 and 2-2	Revised
3-1 and 3-2	Revised
4-1 and 4-2	Revised
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Abbreviations and Acronyms

1. Introduction

The Earth Observing System (EOS) Data and Information System (EOSDIS), as the National Aeronautics and Space Administration's (NASA) overall Earth Science discipline data system, provides the ground system for the collection and analysis of science data to support scientists in resolving the dynamics of the Earth's components and the processes by which they interact. As a part of the EOS Program, EOSDIS supports: the planning, scheduling, and control of the EOS series of spacecraft; exchanging commands, data and algorithms with the European Space Agency (ESA), Japan, Canada, the National Oceanic and Atmospheric Administration (NOAA), and any other non-NASA entities involved in the overall EOS mission; the coordination of these activities with other data gathering systems; and the transformation of the observations into physical variables, providing for higher levels of processing and presenting the data to users in forms that facilitate and stimulate interactive scientific research. The portion of EOSDIS addressed in this document is science system portion of the EOSDIS Core System (ECS).

The ECS provides the ground facilities and procedures to support and operate the EOS Terra and Aqua missions. This includes processing production data (Level 0) from EDOS to higher levels, distributing and receiving science data from the Instrument Teams' Science Computing Facilities (SCFs). ECS also provides information management, data archive, and data distribution functions for TERRA and AQUA missions and other NASA Earth science flight missions, NASA Earth science instruments flown on non-NASA flight missions, and for other NASA held Earth science data.

1.1 Scope

ECS science system operational elements are, or will be, deployed to the locations shown below:

- Distributed Active Archive Centers (DAACs):
  - EROS Data Center (EDC) — Sioux Falls, South Dakota
  - Goddard Space Flight Center (GSFC) — Greenbelt, Maryland
  - Langley Research Center (LaRC) — Hampton, Virginia
  - National Snow and Ice Data Center (NSIDC) — University of Colorado, Boulder, Colorado

In addition, ECS science operations are supported by the following activities at the ECS Development Facility, Upper Marlboro, Maryland:

- ECS System Integrated Logistics Support (ILS)
- ECS Science System Operations Support (SOS)
- ECS Maintenance and Operations Management

1.2 Document Organization

This document responds to the SOW and DID and is organized into the following sections and appendices:

- Section 1 Introduction. Introduces EOSDIS and this document.
- Section 2 Related Documentation. Lists documents that drive, support or expand on the material in this plan.
- Section 3 ECS Science Operations. Summarizes the operations of the system
- Section 4 ECS Science Training Plans. Describes the approach to Release 6A unique training requirements.
- Section 5 ECS Science Staffing Plans. Describes the staffing plan assumptions. Appendixes to this document provide the detailed staffing plans as a function of time.

- EROS Data Center DAAC Appendix A
- Goddard Space Flight Center DAAC Appendix B
- Langley Research Center DAAC Appendix C
- National Snow and Ice Data Center DAAC Appendix D
- System Integrated Logistics Support Appendix E
- Science System Operations Support Appendix F
- Science M&O Management Appendix G

2. Related Documentation

2.1 Parent Documents

The parent documents are the documents from which this document's scope and content are derived.

423-41-01	Goddard Space Flight Center, EOSDIS Core System (ECS) Statement of Work
423-41-03	Goddard Space Flight Center, EOSDIS Core System (ECS) Contract Data Requirements Document
CCR 423-01-41-185	Restructure the ECS Contract for Options A+

2.2 Applicable Documents

The following documents are referenced within this document, or are directly applicable, or contain policies or other directive matters that are binding upon the content of this volume.

194-501-PA1	Performance Assurance Implementation Plan for the ECS Project

2.3 Information Documents

334-CD-001	5A Science System Release Plan
334-CD-510	5B Science System Release Plan
334-CD-600	6A Science System Release Plan

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3. ECS Science Operations

Fulfillment of the science portion of the **Functional and Performance Requirement Specification** has been allocated to a series of incremental releases beginning with Release 4, the first operational release, and culminating with Release 6B in 2001. The detailed allocation of requirements and functional capabilities are described in a series of release specific Science System Release Plan documents (CDRL 147, DID 334) that are published prior to the initiation of work on each release. Additional information affecting staffing is contained in the following CDRL items:

CDRL Item 002, DID 102, **ECS Configuration Management Plan**, describes the approach used to manage and control the operational baseline. It describes the general flow of change requests and the management of configuration changes that result from those requests.

CDRL Item 109, DID 601, **Maintenance and Operations Management Plan**, describes the functions that are performed at each operational and maintenance center. It also provides scenarios for intra-center and inter-center coordination, configuration management, and change control.

CDRL Item 112, DID 604, **ECS Operations Concept Document,** contains specific operations scenarios for the system, in general, and all releases through Release B. This document describes the way in which the system's users/operators interact with the system. It also details how operational tasks are performed on the system.

CDRL Item 113, DID 605, **Operations Scenarios**, describes the operability of the system design through the use of representative science data processing and system administration sequences (scenarios). The scenarios include operations activity flows, operator actions and system actions-responses.

CDRL Item 119, DID 613, **COTS Maintenance Plan**, and CDRL Item 120, DID 614, **Developed Software Maintenance Plan**, describe the software maintenance concepts used to maintain the ECS configuration items.

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4. ECS Science Training Plans

The **ECS Training Plan** defines the training required to prepare personnel to operate, maintain and utilize the ECS in support of EOS missions. It describes curriculum and schedule for Contractor training of EOS management, investigator, technical, operations and maintenance personnel.

The following sections describe the training drivers.

4.1 Training Requirements

Training of M&O personnel includes the following topic areas:

- Production Planning and Processing
- Archive Processing
- Configuration Management
- Data Distribution
- Database Administration
- Ingest Operations
- Network Administration
- Problem Management
- Resource Planning
- Science Software Integration and Test
- System Administration
- System Troubleshooting
- User Services

These requirements are satisfied using a combination of project-developed training and training provided by COTS vendors. Training types are both formal classroom training and On-the-Job Training (OJT). Training courses and objectives are oriented to supporting on-site test programs and satisfying operator certification requirements.

4.2 Training Schedule

Preliminary training is held prior to CSR to provide system familiarization for personnel who support acceptance test activities. Additional training is available to prepare M&O personnel for certification and to update the staff on new capabilities deployed in each release.

4.3 Impact of Training on Operations

Training and certification is planned to minimize the impact on operations. Personnel selected for operations positions match certification criteria as closely as possible. Once hired and oriented to the project, new personnel are screened for ability in all skill areas and training is planned for those areas where deficiencies exist. After training has been accomplished, certification testing is conducted and, once successful results are obtained, permanent assignment is made. All events associated with this training and certification are the responsibility of each site's management with certification criteria and scheduling support offered by EDF based personnel.

Each site's management determines the best times for training and certification based on operational commitments, the availability of training support necessary, and the impact training or a delay in training has on the site.

4.4 Training Locations

Locations for training are either at vendor locations (in the case of most COTS courses), at the EDF, or at each DAAC. When operations schedules allow and it is cost effective to do so, training is conducted on the operational HW and SW. For training occurring at the DAACs, training facilities should meet both the functional requirements of the training (accommodation of personnel, requisite HW and SW for hands-on training, etc.) and the basic standards for training facilities as stated in the Contractor Provided Training Specification (535-TIP-CPT-001). It is the responsibility of each DAAC to ensure that training facilities, support equipment, and schedules are adequate to accomplish training objectives.

5. ECS Science Staffing Plans

The staffing plans:

- Are based on staffing analyses inclusive of Modification 141 changes.
- Are approximate and may not precisely match the detailed control account plans maintained by the Contractor.
- May be adjusted to respond to trades during the design, implementation, testing of the releases.
- May be adjusted to respond to experience in operations.
- Have been edited to address the period of Nov-01 through Oct-02. Staffing levels prior to Nov-01 have been deleted from the document.
- May be adjusted by ECS Contractor management action to meet technical, schedule or cost goals.

The staffing estimates cover the following:

- Management, integrated logistics support, sustaining engineering, operations and/or support at the following locations:
  - EDC
  - GSFC
  - LaRC
  - NSIDC
  - EDF

The following ground rules and assumptions have been used to develop this staffing:

- ECS mission responsibilities are as shown in Table 5-1. Staffing estimates at LaRC, and NSIDC for scope outside of the ECS contract are also included in this document for information purposes only. Budgets to cover this staffing are not part of the ECS Contract.
- Hours of operations are as shown in Table 5-2.

Position descriptions are contained in DID 607. Table 5-3 maps the M&O functions to the key activities described in DID 604, the Operations Concept Document, Part 2B, Section 4.

Table 5-1. ECS Mission Baseline

Mission	Launch Date	ASF	EDC	GSFC	LaRC	NSIDC	ORNL
Landsat 7	Apr-99		ETM+*				
Terra	Dec-99		ASTER, MODIS*	MODIS	MISR, MOPITT	MODIS*	
METEOR-3M	Jul-99				SAGE III*		
FOO	Oct-99				ACRIM*		
Aqua	Mar-02		AMSR-E*, MODIS*	AIRS, AMSR-E*, AMSU*, HSB*, MODIS		AMSR-E*, MODIS*	
ICESat	Sep-02					GLAS	
Aura	Dec-02			HIRDLS*, MLS*	TES		
Other	--	RADARSAT*		DAO*			

Notes: * Data archive and distribution only

Table 5-2. Hours of Operations

GSFC	Hours
AIT & I/FT Prime Shift	8 HRS, 7 Days
Other Shifts	16 HRS, 7 Days
LaRC	
Operations staff provided by local DAAC	
EDC	
AIT & I/FT Prime Shift	8 HRS, 7 Days
Other Shifts	16 HRS, 7 Days
NSIDC	
Operations staff provided by local DAAC	

Table 5-3. Mapping of M&O Functions to Science Data Processing and System Management Key Activities (1 of 2)

Activity	Activity Description	Functional Title
Pull Users and User Services	User registration	DAACs: DAAC User Services Representative
	User reporting and assistance	DAACs: DAAC User Services Representative
	Data ordering and tracking	DAACs: DAAC User Services Representative
	User statistics	DAACs: DAAC User Services Representative
Information Management	Metadata	DAACs: DAAC User Services Representative; DAAC Science Data Specialist; DAAC Database Administrator
	Data management	DAACs: DAAC User Services Representative; DAAC Science Data Specialist; DAAC Database Administrator
Data Input	Level 0 data ingest	DAACs: DAAC Production Monitor
	Electronic ingest of ancillary and other level 0 data	DAACs: DAAC Production Monitor
	Media ingest of ancillary and other non-level 0 data	DAACs: DAAC Ingest/Distribution Technician
Data Storage	Working storage and data archival	DAACs: DAAC Archive Manager
Data Distribution	Electronic data distribution	DAACs: DAAC User Services Representative
	Media distribution	DAACs: DAAC Ingest/Distribution Technician
Production Planning	Plan creation	DAACs: DAAC Production Planner
	Plan activation/cancellation	DAACs: DAAC Production Monitor
	Planning data base modification	DAACs: DAAC Production Planner
	Plan view/monitoring	DAACs: DAAC Production Monitor
	Standard production request	DAACs: DAAC Production Planner
	On-demand production request	DAACs: DAAC Production Planner
	Reprocessing production request	DAACs: DAAC Production Planner
	Planning failure recovery	DAACs: DAAC Production Planner

Table 5-3. Mapping of M&O Functions to Science Data Processing and System Management Key Activities (2 of 2)

Activity	Activity Description	Functional Title
Production Execution & Processing	Production processes	DAACs: DAAC Production Monitor
Science SW Integration and Test	Initial delivery	DAACs: DAAC Science SW Support Engineer
	Science SW update	DAACs: DAAC Science SW Support Engineer
System Management	Resource planning	DAACs: DAAC Resource Planner
	Resource management	DAACs: DAAC Resource Manager
	Security management & accountability	DAACs: DAAC Resource Manager
	Performance management	DAACs: DAAC Resource Manager; DAAC Resource Planner SMC: SMC Performance Analyst; SMC Network Analyst
	System administration	DAACs: DAAC System Administrator SMC: SMC System Administrator
	Configuration management	DAACs: DAAC CM Administrator SMC: SMC CM Administrator

Appendix A. EDC DAAC Staffing Plan

Staffing levels for ECS maintenance and operations at the EDC DAAC are shown in Table A-1.

Table A-1. EDC AAC ECS Maintenance and Operations Staffing (Headcount)

Function	Contractor	Nov-01	Jan-02	Apr-02	Nov-02
814N1T DAAC ECS Contr. Mgr & DAAC AA	T	2.0	2.0	2.0	2.0
814N1T DAAC Admin/Recp	T	1.0	1.0	1.0	1.0
844N1H DAAC Ops Readiness & Perf. Assur./Performance Analyst	H	1.0	1.0	1.0	1.0
844N1H DAAC System Engineer	H	6.0	6.0	6.0	6.0
844N1T DAAC System Engineer	T	2.0	2.0	2.0	2.0
844N1H DAAC SW Maintenance Engineer	H	4.0	4.0	4.0	4.0
844N1T DAAC SW Maintenance Engineer	T	1.0	1.0	1.0	1.0
844N1T DAAC System Test Engineer	T	3.0	3.0	3.0	3.0
844N1T DAAC Database Administrator	T	2.0	2.0	2.0	2.0
844N1A DAAC Database Administrator	A	1.0	1.0	1.0	1.0
844N1T DAAC Resource Planner	T	1.0	1.0	1.0	1.0
844N1T DAAC CM Administrator	T	1.0	1.0	1.0	1.0
844N1T DAAC ILS Administrator	T	1.0	1.0	1.0	1.0
874N2T DAAC Maintenance Coordinator	T	1.0	1.0	1.0	1.0
874N2A DAAC Science SW &T Support Engr.	A	2.0	2.0	2.0	2.0
874N2A DAAC Science Coordinator	A	1.0	1.0	1.0	1.0
874N2A DAAC Science Data Specialist	A	3.0	3.0	3.0	3.0
874N2T DAAC Operations Supervisor	T	1.0	1.0	1.0	1.0
874N2T DAAC Production Planner	T	2.0	2.0	2.0	2.0
874N2T DAAC Production Monitor including PM1	T	3.0	3.0	3.0	3.0
874N2T DAAC Resource Manager including PM1 (Schedulers)	T	5.0	5.0	8.0	8.0
874N2T DAAC Archive Manager	T	2.0	2.0	2.0	2.0
874N2T DAAC Ingest/Distribution Tech.	T	2.0	2.0	2.0	2.0
874N2T DAAC Computer Operator	T	10.0	10.0	10.0	10.0
874N2T DAAC System Administrator	T	6.0	6.0	6.0	6.0
Security ESD					
874N2T Security System Administrator	T		1.0	1.0	1.0
		64.0	65.0	68.0	68.0

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Appendix B. GSFC DAAC Staffing Plan

Staffing levels for ECS maintenance and operations at the GSFC are shown in Table B-1.

Table B-1. GSFC DAAC ECS Maintenance and Operations Staffing (Headcount)

GSFC Function	Contractor	Nov-01	Apr-02	End of Contract Nov-02
811N1H DAAC ECS Contr. Mgr	H	1.00	1.00	1.00
811N1H DAAC ECS DAAC AA	H	0.50	0.50	0.50
811N1H DAAC Ops Readiness & Perf. Assur.	H	0.50	0.50	0.50
871N2L LM M&O Manager	L	1.00	1.00	1.00
841N1H DAAC System Engineer	H	4.00	4.00	4.00
841N1H DAAC SW Maintenance Engineer	H	3.00	3.00	3.00
841N1T DAAC System Engineer	T	1.00	1.00	1.00
841N1L DAAC SW Maintenance Engineer	L	1.00	1.00	1.00
841N1H DAAC System Test Engineer	H	3.00	3.00	3.00
841N1T DAAC System Test Engineer	T	1.00	1.00	1.00
871N2T DAAC System Administrator	T	4.00	4.00	4.00
871N2L DAAC System Administrator	L	1.00	1.00	1.00
841N1T DAAC Database Administrator	T	3.00	3.00	3.00
871N1T DAAC Resource Planner	T	1.00	1.00	1.00
841N1T DAAC CM Administrator	T	3.00	3.00	3.00
820N2E DAAC ILS Administrator	E	0.50	0.50	0.50
820N2E DAAC Maintenance Coordinator	E	0.50	0.50	0.50
871N2A DAAC Science SW I&T Support Engr.	A	4.00	4.00	4.00
871N2A DAAC Science Data Specialist	A	5.00	5.00	5.00
871N2L DAAC Science Data Specialist	L	1.00	1.00	1.00
871N2T DAAC Science Data Specialist	T	3.00	3.00	3.00
871N2T DAAC Operations Supervisor	T	1.00	1.00	1.00
871N2T DAAC Production Planner	T	1.00	1.00	1.00
871N2T DAAC Production Monitor	T	5.00	5.00	5.00
871N2T DAAC Resource Manager (OPS Controller)	T	5.00	5.00	5.00
871N2L DAAC Resource Manager (OPS Controller)	L	1.00	1.00	1.00
871N2L DAAC Archive Manager	L	2.00	2.00	2.00
871N2L DAAC Ingest Tech.	L	6.00	6.00	6.00
871N2L DAAC Distribution Tech	L	5.00	5.00	5.00
871N2H DAAC User Services Representative	H	3.00	3.00	3.00
SMC				
871N3T DAAC SMC Database Administrator	T	1.00	1.00	1.00
871N3T DAAC SMC CM Administrator	T	1.00	1.00	1.00
Security ESD				
17136H DAAC System Engineer- Security ESD	H	1.00	1.00	1.00
17500T DAAC System Administrator for Computer Security	T	1.00	1.00	1.00
Archive Migration ESD				
871N2L DAAC Archive Migration Support	L	0.50	0.00	0.00
		75.50	75.00	75.00

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Appendix C. LaRC DAAC Staffing Plan

Staffing levels for ECS maintenance and operations at the LaRC DAAC are shown in Table C-1. The ECS contractor team has limited scope for permanent operator staffing at the DAAC, therefore, operator staffing levels are not provided in this document.

Table C-1. LaRC DAAC ECS Maintenance and Operations Staffing - ECS Scope - (Headcount)

LaRC Function	Contractor	Nov-01	End of Contract Nov-02
847N1H- DAAC ECS Contr. Mgr & DAAC AA		0.5	0.5
816N1- DAAC Ops Readiness & Perf. Assur.			
816N1			
847N1H- DAAC System Engineer	H	2.5	2.5
847N1H- DAAC SW Maintenance Engineer	H	3.0	3.0
847N1H DAAC System Test Engineer	H	2.0	2.0
846N1T DAAC System Test Engineer			
846N1T DAAC System Test Engineer			
846N1- DAAC Database Administrator			
846N1- DAAC Resource Planner			
846N1- DAAC CM Administrator			
846N1T DAAC ILS Administrator			
876N2T DAAC Maintenance Coordinator			
876N2- DAAC Science SW I&T Support Engr			
876N2S DAAC Science Coordinator			
876N2- DAAC User Services Representative			
876N2- DAAC Science Data Specialist			
876N2- DAAC Operations Supervisor			
876N2- DAAC Production Planner			
876N2- DAAC Production Monitor			
876N2- DAAC Resource Manager			
876N2- DAAC Archive Manager			
876N2- DAAC Ingest/Distribution Tech			
876N2			
876N2- DAAC Computer Operator			
876N2T DAAC System Administrator			
		8.0	8.0

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Appendix D. NSIDC DAAC Staffing Plan

Staffing levels for ECS maintenance and operations at the NSIDC DAAC are shown in Table D-1. The ECS contractor team has limited scope for permanent operator staffing at the DAAC, therefore, operator staffing levels are not provided in this document.

Table D-1. NSIDC DAAC ECS Maintenance and Operations Staffing - ECS Scope - (Headcount)

NSIDC Function	Contractor	Nov-01	Nov-02
846N1H - DAAC ECS Contr. Mgr & DAAC AA	H	1.0	1.0
816N1- DAAC Ops Readiness & Perf. Assur.		0.0	0.0
816N1		0.0	0.0
846N1H DAAC System Engineer	H	1.0	1.0
846N1H DAAC SW Maintenance Engineer	H	1.0	1.0
846N1T DAAC System Test Engineer			
846N1- DAAC Database Administrator		0.0	0.0
846N1- DAAC Resource Planner		0.0	0.0
846N1- DAAC CM Administrator		0.0	0.0
846N1T DAAC IMS Administrator			
876N2T DAAC Maintenance Coordinator	T	1.0	1.0
876N2- DAAC Science SW I&T Support Engr.		0.0	0.0
876N2A DAAC Science Coordinator	A	1.0	1.0
876N2- DAAC User Services Representative		0.0	0.0
876N2- DAAC Science Data Specialist		0.0	0.0
876N2- DAAC Operations Supervisor		0.0	0.0
876N2- DAAC Production Planner		0.0	0.0
876N2- DAAC Production Monitor		0.0	0.0
876N2- DAAC Resource Manager		0.0	0.0
876N2- DAAC Archive Manager		0.0	0.0
876N2- DAAC Ingest/Distribution Tech.		0.0	0.0
876N2		0.0	0.0
876N2- DAAC Computer Operator		0.0	0.0
846N1H DAAC System Administrator	H	0.5	0.5
876N2T DAAC System Administrator	T	1.0	1.0
Security ESD			
17136H- DAAC System Administrator for Computer Security	H	0.5	0.5
		7.0	7.0

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Appendix E. System Integrated Logistics Support Staffing Plan

Staffing levels for ECS Contractors in System Integrated Logistics Support organization are shown in Table E-1.

Table E-1. System Integrated Logistics Support Staffing (Headcount)

ILS_Mod_86 Function	Contractor	Nov-01	Jan-02	Aug-02	End of Contract Nov-02
810N3E - Property Management, Facility & Installation Planning	E	4.0	3.0	1.5	1.5
820N1E - ILS Manager	E	1.0	1.0	1.0	1.0
820N2E - ILS Local Maintenance Coordinator - GSFC	E	1.0	1.0	1.0	1.0
820N3E - ILS COTS Hardware/Software Maintenance Manager	E	2.0	2.0	0.5	0.5
830N1E SDPS M&O COTS Training Budget Administrator	E	0.5	0.5	0.0	0.0
840N1E SDPS M&O COTS SW License Management	E	1.5	1.5	0.5	0.5
		10.0	9.0	4.5	4.5

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Appendix F. Science System Operations Support Staffing Plan

Staffing levels for ECS Contractors in Science System Operations Support organization are shown in Table F-1.

Table F-1. Science System Operations Support Staffing (Headcount)

SOS Function	Contractor	Nov-01	Dec-01	Jan-02	#####
810N2H ECS Managers	H	1.0	1.0	1.0	1.0
810N2H Development Support	H	5.0	2.0	1.0	1.0
810N2H Deployment IPT	H	3.0	3.0	3.0	3.0
810N2L Deployment IPT	L	1.0	1.0	1.0	1.0
810N2T DAAC Support/Help Desk/TT Telecon	T	1.0	1.0	1.0	1.0
810N2L DAAC Support/Help Desk/TT Telecon	L	1.0	1.0	1.0	1.0
830N1H Training Manager	H	1.0	1.0	1.0	1.0
830N1H Trainers	H	2.0	2.0	2.0	2.0
		15.0	12.0	11.0	11.0

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Appendix G. Science M&O Management Staffing Plan

Staffing levels for ECS' science M&O management activities are shown in Table G-1.

Table G-1. Science M&O Management Staffing Plan (Headcount)

M&O Management Function	Contractor	Nov-01	End of Contract Nov-02
810N6H ECS M&O Management and Admin Asst	H	2.0	2.0
Total		2.0	2.0

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Abbreviations and Acronyms

7x24	7 days/week, 24 hours/day
A_O	Operational availability
CCR	Configuration Change Request
CDRL	Contract Data Requirements List
CM	Configuration Management
COTS	Commercial off-the-shelf
CSR	Consent to Ship Review
DAAC	Distributed Active Archive Center
DID	Data Item Description
ECS	EOSDIS Core System
EDC	EROS Data Center
EDF	ECS Development Facility
EOC	EOS Operations Center
EOS	Earth Observing System
EOSDIS	Earth Observing System Data and Information System
EROS	Earth Resources Observation System
ESDIS	Earth Science Liaison Data and Information System Project
ESN	EOS Science Liaison Network
FOS	Flight Operations Segment
FOT	Flight Operations Team
GSFC	Goddard Space Flight Center
I&T	Integration and test
ILS	Integrated Logistics Support
JPL	Jet Propulsion Laboratory
LaRC	Langley Research Center
M&O	Maintenance and Operations
NASA	National Aeronautics and Space Administration
NSIDC	National Snow and Ice Data Center

SMC	System Monitor Center
SOW	Statement of Work
TERRA	The official name of the AM-1 spacecraft
WBS	Work Breakdown Structure